KENTUCKY ROUTE 478 BRIDGE
Spanning Jellico Creek
Williamsburg Vicinity
Whitley County
Kentucky

HAER NO.KY-23

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
SOUTHEAST REGION, NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
ATLANTA, GEORGIA 30303

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Kentucky Route 478 Bridge

HAER No. KY-23

Location:	Spanning Jellico Creek near Williamsburg, Whitley County, Kentucky UTM: 16.744110.4069900 Quad: Hollyhill, Kentucky
Date of Construction:	1907
Builder/Designer:	Capital Construction Company of Columbus, Ohio
Present Owner:	Kentucky Transportation Cabinet State Office Building Frankfort, Kentucky 40622
Present Use:	Vehicular bridge
Significance:	One of only three quadrangular, or double intersection, Warren through trusses in Kentucky. It is also the only Kentucky bridge constructed by the Capital Construction Company of Columbus, Ohio.
Historian:	Jayne C. Henderson

The Kentucky Route 478 Bridge over Jellico Creek in Whitley County is eligible for listing in the National Register of Historic Places as a structure of both local and statewide importance. The bridge is a quadrangular (double intersection) Warren through truss, one of only three bridges of this type in Kentucky. It crosses over Jellico Creek, approximately 14 miles east of Whitley City and approximately seven miles west of Williamsburg and Interstate 75. Jellico Creek is a tributary to the Cumberland River, a major drainage basin in southern Kentucky.

The Kentucky Route 478 Bridge is the only Kentucky bridge designed and built by the Capital Construction Company of Columbus, Ohio. According to the bridge plate, it was constructed in 1907. The overall length of the single span bridge is 158 feet, with an overall width of 12 feet. Interior horizontal clearance is 10 feet 11 inches, and vertical clearance over the deck is 15 feet 2 inches. The truss span length is 108 feet. The most recent (May 1, 1987) structural and appraisal (SIA) rating is 13.2 out of a possible 100 points.

The bridge gives an example of workmanship and design characteristics indicative of its time and place in history. The bridge, although in extremely poor structural condition, is a good example of a rare quadrangular Warren through truss. It has provided continuous service to a rural population for over three quarters of a century.

Most of the 70 historic bridges contained in A Survey of Truss, Suspension, and Arch Bridges in Kentucky are metal trusses which represent variations of the two most popular forms of truss, Pratt and Warren. In fact, Pratt trusses represented approximately 31 percent of the total 651 bridges surveyed for historical significance. The Warren truss was the second most common type, representing approximately 17 percent. Widespread bridge construction in Kentucky began in the last part of the 19th century. It was during this time that the Pratt and Warren trusses accounted for the majority of bridge design. Thus, the Kentucky Route 478 Bridge represents both a unique (quadrangular) and common (Warren) example of that period of design and construction.

The Warren truss was named after James Warren, one of two British engineers who first patented this truss type in 1848. The truss has diagonal web members that are alternately placed in compression and tension as a moving load passes through the bridge.the bridge. Vertical members on some Warren trusses also provide bracing. The vertical members can be rigid compression posts, in order to stiffen the top chord or they can act as hangers in tension to help support the deck. A Warren truss has no counters. An interesting refinement was the quadrangular, or double intersection, Warren truss. This trusses uses two intersecting web systems with or without vertical members. The quadrangular truss is easily identified by its diamond intersecting web outline. The quadrangular Warren truss represented a refinement in truss design for late 19th csntury civil engineering.